

In re Patent Application of:  
**ARENA ET AL.**  
Serial No. 09/929,833  
Filed: AUGUST 14, 2001

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**In the Claims:**

Claims 1-49 are canceled.

50. (Previously presented) A system for the analysis of an image of a DNA microarray comprising an array of spots, the system comprising:

a sensor for acquiring signals corresponding to the image of the DNA microarray; and

a cellular neural network (CNN) circuit to process the signals from said sensor, said CNN circuit combining different processing results associated with distinct chromatic components of the image of the DNA microarray.

51. (Previously presented) A system according to Claim 50 wherein said CNN circuit processes the signals by parallel processing.

52. (Previously presented) A system according to Claim 50 wherein said signals comprise analog signals, and wherein said CNN circuit processes the analog signals.

53. (Previously presented) A system according to Claim 50 wherein said sensor acquires signals corresponding to a fluorescence image of the DNA microarray.

54. (Previously presented) A system according to Claim 50 wherein said CNN circuit comprises at least one array of cells and synaptic connections interconnecting the cells.

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55. (Previously presented) A system according to Claim 54 wherein said at least one array of cells has a spatial distribution correlated to the image of the DNA microarray.

56. (Previously presented) A system according to Claim 50 wherein said sensor and said CNN circuit are integrated in a single chip.

57. (Previously presented) A system according to Claim 50 wherein said CNN circuit comprises a memory for storing signals corresponding to the image of the DNA microarray and control logic for processing in real-time signals associated with the image in real-time.

58. (Previously presented) A system for the analysis of an image of a DNA microarray comprising an array of spots, the system comprising:

a sensor for acquiring signals corresponding to the image of the DNA microarray; and

a cellular neural network (CNN) circuit to process the signals from said sensor, said CNN circuit performing a combination operation associated with different chromatic components of the image of the DNA microarray.

59. (Previously presented) A system according to Claim 58 wherein said CNN circuit processes the signals by parallel processing.

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60. (Previously presented) A system according to Claim 58 wherein said signals comprise analog signals, and wherein said CNN circuit processes the analog signals.

61. (Previously presented) A system according to Claim 58 wherein said sensor acquires signals corresponding to a fluorescence image of the DNA microarray.

62. (Previously presented) A system according to Claim 58 wherein said CNN circuit comprises at least one array of cells and synaptic connections interconnecting the cells.

63. (Previously presented) A system according to Claim 62 wherein said at least one array of cells has a spatial distribution correlated to the image of the DNA microarray.

64. (Previously presented) A system according to Claim 58 wherein said sensor and said CNN circuit are integrated in a single chip.

65. (Previously presented) A system according to Claim 58 wherein said CNN circuit comprises a memory for storing signals corresponding to the image of the DNA microarray and control logic for processing in real-time signals associated with the image in real-time.

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66. (New) A system for the analysis of an image of a DNA microarray comprising an array of spots, the system comprising:

a sensor for acquiring signals corresponding to the image of the DNA microarray; and

a cellular neural network (CNN) circuit to process the signals from said sensor, said CNN circuit combines different processing results associated with distinct chromatic components of the image of the DNA microarray and said combination operation comprises an AND logic operation.

67. (New) A system for the analysis of an image of a DNA microarray, the system comprising:

a sensor for acquiring analog signals corresponding to the image of the DNA microarray; and

a cellular neural network (CNN) circuit for parallel processing the analog signals from said sensor, and said sensor is an optical sensor responsive to a predetermined set of chromatic components of the image of the DNA microarray, and wherein said CNN circuit processes signals corresponding to the image of the DNA microarray by at least one of applying parameters associated with a cellular neural network and combining different processing results associated with chromatic components of the image of the DNA microarray.